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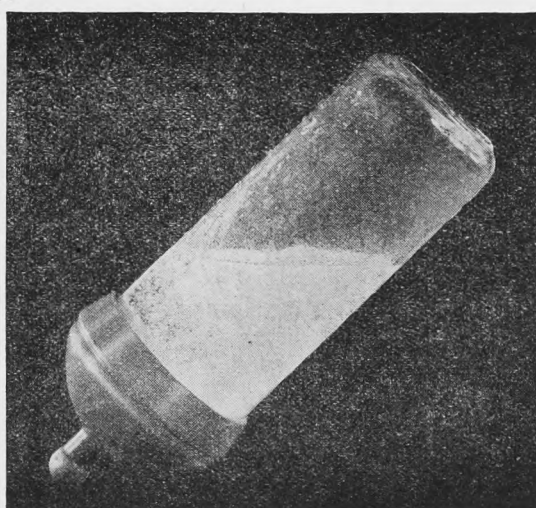
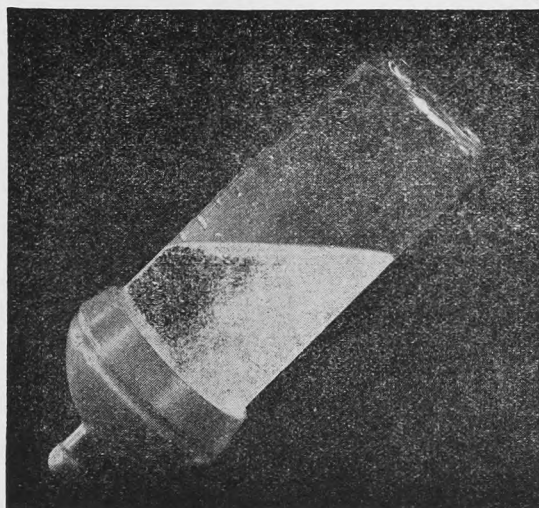
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## Clinical Section

### \*Upper Respiratory Sepsis

#### AETIOLOGY

and

#### SOME CONSIDERATIONS ON IMMUNITY

By

DANIEL NICHOLSON, M.D. (Man.), M.R.C.P. (Lond.)

*Assistant Professor of Pathology*

*University of Manitoba*

In the present imperfect state of our knowledge regarding upper respiratory infection we are forced to consider many factors, some of which are probably of minor importance. We may be totally unaware of the real significance of the whole phenomenon. We observe certain changes and interpret their significance according to our present lines of reasoning. Future methods, as yet undreamed of, may produce a complete change of outlook. Fifty years ago there was great controversy about whether or not the membrane should be stripped from a diphtheritic throat and what was the best local application to use. The medical conceptions were mainly of a mechanical and crude chemical variety. How different that was from our viewpoint today! The future may hold a similar advance in theory and practice for upper respiratory sepsis. In fact a good beginning has already been made. There is no place for fixed ideas and dogmatic views on this subject, at least not for very long.

Classification of causes is difficult because there seems to be so many. As we see them today, it is difficult to place correct emphasis on those of great importance and to indicate those of minor significance. In attempting a grouping I am going to leave those I think most important until last. Because there are serious gaps in our knowledge regarding the immune mechanism, predisposing causes in the past and present are given a position of undue actual importance. We should be fully aware of this so we will be ready to use more direct methods of prevention and cure as they become available.

#### Anatomical Defects.

Poorly developed noses having inadequate air spaces and defective drainage are generally considered more prone to infection than well developed noses with adequate air passages. This information has been handed down by generations of physicians. It is an impression from observation and is probably correct, but many a cherished idea implicitly believed for generations has been finally proven utterly wrong. It is curious that sinusitis usually develops on the side of a nose having the widest air space. As there is great variation in the structure of the nares and sinuses

of apparently normal noses, we may suspect that this feature has been over emphasized.

Perhaps the commonest obstruction in the posterior nasopharynx in early childhood is the overgrowth of adenoid tissue resulting from infection. Other prominent causes preventing proper nasal development are:

1. Faulty nutrition in early childhood, especially the lack of vitamins A and D which are present in cod liver oil.

2. Hereditary factors. A particular type of nose may be the most constant feature in family resemblance.

#### Pathological Tissue Changes.

Under pathological changes we may list the thickened membrane or suppuration which obstructs the airway or sinus ostia in acute and chronic rhinitis and sinusitis.

In acute sinusitis the membrane lining the sinus is 10 to 15 times its normal thickness. It is so edematous that it appears like jelly. The exudate is mostly mucus containing some pus cells and bacteria. Every "cold in the head" is really a sinusitis. No acute process takes place even in the nasopharynx without also involving the antrums. It is remarkable that complete recovery almost always takes place spontaneously and the greatly thickened membrane returns to normal.

It is rare in acute empyemas for the membrane to ulcerate. Occasionally the infection is of dental origin, and after removal of an abscessed tooth which has extended into the antrum it is very difficult indeed to close the sinus from the mouth. This provides a constant source of reinfection.

#### Chronic Sinusitis and Its Contributory Causes.

Frequently repeated attacks of acute sinusitis lead to chronic sinusitis. The thickened membrane is covered by epithelium and consists of connective tissue sparsely infiltrated with chronic inflammatory cells. In the more virulent infections ulceration may be present and involve the periosteal layers. This type of disease is usually due to a staphylococcus.<sup>1</sup> In the low grade infections cysts may develop or polypi may form if allergy is also present. The lower sinuses are liable to infection from those above them. The right antrum is more frequently infected than the left, because most people habitually sleep on the right side.

#### Treatment Delaying Resolution.

We should not fail to consider some causes which may prolong a nasal infection. Among these must be listed some of the results of surgical operations and nasal irrigation treatments. Although Dr. McGregor of Toronto has demon-

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strated that normal ciliated epithelium and even mucus glands regenerate rapidly after complete curettement of a sinus when the conditions for healing are good.<sup>2</sup> Dr. Hilding working at the Mayo Clinic has found that if vascularization is poor, fibrous bands may develop which hinder normal drainage and particles of epithelium submerged in the scar tissue may form cysts.<sup>3</sup> If infection is present there is a massive production of scar tissue without adequate epithelium covering it. Partially amputated turbinates have an impaired circulation and do not withstand frosty air as well as a complete turbinate does. But even the most critically minded physician will agree that adequate space for nasal breathing is a necessity for proper respiratory function and general body development. After all other methods have been exhausted, surgery is the only means of attaining this.

In the common nasal treatments one has to keep in mind the possibility of irrigation transferring infection from an infected sinus to a healthy one. Even such a bland solution as normal physiological saline removes the protective layer of mucus, stops ciliary action and causes an enormous edema of the columnar cells lining the sinus. Strong cocaine, menthol, thymol and eucalyptol slow ciliary activity, epinephrine, zinc sulphate and mercuriochrome are even more harmful and 0.5% silver nitrate destroys all ciliary activity.<sup>4</sup> Fortunately these cells regenerate very rapidly. Many current ideas concerning local treatment are survivals from the days before bacteria were regarded as the cause of disease when pus was regarded as something to be completely washed out rather than merely providing an exit for it. We now know that the bacteria beneath the mucosa cause the inflammatory mischief and these organisms cannot be successfully destroyed by any local application without also destroying the mucosa to a greater degree and making the end condition worse than the original one. The main channel for spread of infections is through the submucosal lymphatics. Healthy, intact mucosa is remarkably resistant to bacteria on its surface. Apparently the nasal mucosa is so delicate that it will tolerate nothing but air and even air of unusual temperatures or humidity disturbs its equilibrium (see fig. 1 and 2). Swimming, and especially diving, is likely to lead to sinusitis unless special precautions are taken to keep water out of the nose. The irritation of water that is not isotonic produces a tremendous mucosal edema which allows ready access for bacteria.

#### Allergic Rhinitis.

Allergic rhinitis is less common than infectious rhinitis but an infection may complicate it. The disturbance is essentially a vascular one. This basic capillary fault is inherited like the color of our eyes or our facial profile. Therefore, it never can be removed although it may often be favourably modified to make the afflicted unaware of any symptoms over a period of months or even years. When touched by very small amounts of



Fig. 1.—Section of middle turbinate (x100) showing mucus glands surrounded by a slight increase of inflammatory round cells. The blood vessels are dilated and contain erythrocytes. The compound, columnar, ciliated epithelium is intact.

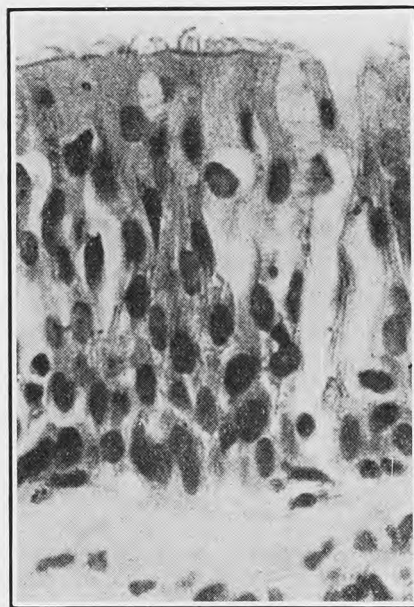


Fig. 2.—Section of mucosa (x600) from Fig. 1 showing compound columnar epithelium containing some mucus. At the right is an ostium of a mucus gland. The cilia on the surface are distinctly seen.

specified irritants the capillaries become dilated and pour out an excess of plasma to make the tissues edematous and the mucosa drip an abundant watery secretion. Rhinologists recognize the pale or mottled swollen and doughy appearance of the mucosa. The presence of eosinophile cells in the nasal discharge often helps to distinguish the condition from an infectious process. These cells are well shown up by a Wright's stain.

In allergy the clinical history is a most important differentiating feature. Summer recurrence points to pollens as a cause. Sudden attacks in certain rooms or special locations with com-



plete remissions in others indicate some external dust as an exciting cause. Cutaneous tests with protein extracts are sometimes helpful in tracking down a single cause. But there are far more patients suffering from minor degrees of a chronic vasomotor rhinitis for which no external irritant may be discovered. Their condition is greatly aggravated when the food intake is excessive and the body secretions lethargic. It is more a matter of excessive food intake than any one article of food being culpable.

Such cases are not reported in the medical journals because they lack any spectacular features. Nor are they adequately dealt with in medical text books or student clinics. These patients have real distress often for years. The subject is worthy of more than passing notice. Because of lack of a direct cause contributory causes have to be prominently considered here. Among these I would list—

1. An overloaded stomach.
2. A poorly functioning skin through lack of daily exercise which produces active perspiration.
3. Sitting in hot, stuffy, smoky atmospheres.

A walk in fresh cool air will contract congested turbinates and open up a nose block. A smart sprint will contract almost anyone's turbinates as closely to the bone as an application of adrenalin, and it has no unfavourable after reaction.

#### **Nutrition.**

It has long been recognized that the onsets of colds or infectious rhinitis is more common on Mondays and Tuesdays, and a reasonable explanation is over eating and under exercising during the week-end. If Sunday is to be a day of rest it should be more of a fast day than a feast day. Lack of nutrition as a predisposing cause of respiratory infection is exceedingly rare in this country. The incidence of common colds was about the same in three groups of nurses who were given (1) Vitamine A, (2) ultra violet radiation and (3) the ordinary well balanced diet.

#### **Systemic Effect of Sinus Suppuration.**

Post-nasal discharge is so common that it is almost universal, especially in the winter months. One often sees thick mucopus adhered to the posterior oro-pharynx and the fasting gastric contents recovered often contain an ounce of mucopus. Many of the patients with large masses of mucopus adhered to the pharynx do not complain of any nasal or throat symptoms at all. Others, often with less post-nasal accumulation, complain bitterly. Nervous sensitiveness and introspection must be a factor here. Dr. Anderson of the Mayo Clinic failed to find any systemic effects in 400 consecutive cases of suppurative sinusitis and is led to the conclusion that sinus suppuration is not an important cause of systemic disease.<sup>5</sup> He has had a wide experience with patients who would be thoroughly investigated.

#### **Hygiene.**

General hygiene is, of course, very important. The proper amount of exercise and sleep is often sadly neglected. A general chilling produces a superficial pallor which extends into the respiratory tract. This temporary anemia of the respiratory mucosa lowers resistance to bacteria on the surface. Hygienic sins, however, are more common than moral ones and physiological righteousness is very difficult to maintain. A moderate self-discipline gives results that are worth while.

#### **Bacterial Etiology.**

So far we have considered man the host, and mainly from the structural viewpoint. Of far greater fundamental importance is the virulence of the invading bacteria and the individual's immunity to it. It is a humiliating thought that man, who is the lord of creation, should so often ultimately succumb to invasion by the most lowly form of vegetable life, namely, bacteria. There is not enough attention paid to this in diagnosis and treatment. On looking up a series of records of 20 recent cases selected at random in Winnipeg General Hospital that had had surgical operation on the nasal sinuses only two had any report on the etiological organism. Of the others, there was not even a report of a microscopic examination of the pus by the interne. This indicates a concept of etiology that is mechanical rather than bacterial and immunological.

The interior of a normal nose is practically sterile apart from the anterior two-thirds of an inch which may contain organisms common to the skin surface or the air; also the lower nasopharynx contains in fewer numbers the microbes commonly found in the throat. This sterile state of the nose is maintained by the action of the cilia and the natural downward flow of the protective layer of mucus.

#### **Specific Infectious Diseases.**

The infectious diseases produce as complications some of our most persistent and serious upper respiratory septic cases, but there is now the cheerful prospect that some of them are preventable. Scarlet fever has as common complications sinusitis and otitis, but it is now possible by immunization with 5 doses of Dick toxin to prevent this disease in 90% of those who are susceptible.<sup>6</sup> But even after protective inoculation or in those who show immunity to scarlet fever by a negative Dick test, mucosal infection by hemolytic streptococci can produce upper respiratory sepsis. Although it is the opinion of physicians who study the effects of immunization at first hand, that the incidence of upper respiratory sepsis due to hemolytic streptococci is less in those who are immune or immunized or receive prompt serum treatment when infected, there are no statistical percentages as yet available on this problem.

In whooping cough, sinusitis may be present as a complication but otitis is commoner. Some writers quote otitis developing in 5% of cases. The new pertussis vaccine of Sauer is an effective

prophylactic, and convalescent serum given before the end of the incubation period ameliorates the course of the disease. One-half the deaths from whooping cough occur in infants under 1 year of age. Under 2 years the mortality is very high.

Measles is likely a virus disease and the bacteria invading secondarily may produce a persistent sinusitis otitis or mastoid infection. There is no agent to produce active immunization but placental extracts,<sup>7</sup> convalescent serum or treble quantities of parent's blood given subcutaneously before the eruption develops will give an abortive form or even prevent the eruption occurring altogether. The globulin extracts from the human placenta contain diphtheria, scarlet fever, measles and poliomyelitis antibodies and antitoxins which are effective when taken by the oral or injection method.

The problem of diphtheria prophylaxis and serum therapy is well developed, and as the immunizing toxoid is very effective, total abolition of diphtheria infection is a public health ideal.

Epidemic influenza is from the most critical investigation up to date, initiated as virus disease and any pyogenic bacteria may become secondary invaders. The influenza bacillus is only one of the possible secondary invaders and probably not the most important. During the small Winnipeg epidemic in January, 1936, the pneumococcus, often a Type 3, and the staphylococcus were found in the lungs of some of the fatal cases on which autopsy was performed. It is the secondary invading bacterium and not the primary virus that causes the sinusitis, otitis or pneumonia.

#### Septic Tonsils.

Infected tonsils, adenoids and bronchiectasis require consideration as foci of upper respiratory sepsis. Removal of tonsils and adenoids which are subject to recurring acute inflammation or chronic inflammation reduces the incidence of sore throats, scarlet fever, diphtheria and cervical adenitis. Acute head colds and otitis media in children, though definitely lessened over the three year period following operation, are not essentially influenced over a 10 year follow-up period. This effect is probably due more to the removal of infected adenoid tissue than to the removal of tonsils. Contrary to the prevailing impression laryngitis, bronchitis and pneumonia occur more frequently in tonsillectomized children.<sup>8</sup>

Septic lung disease is a prominent cause of sinus re-infection. The natural drainage of sinuses is better than the drainage from bronchi and a sinus tends to heal, but during coughing fits small flecks of highly infective sputum fly up past the soft palate into the posterior nasopharynx, and unless the natural resistance is good the sinus becomes infected. Postural lung drainage may act in the same way. There is also the possibility of lymphatic extension from the bronchial tree to the nasal sinuses, but this is difficult to prove.

#### The Common Cold.

Although we cannot regard the question as settled, the majority will agree that the earliest stages of the common cold or acute rhinitis are the result of a contagious virus infection.<sup>9</sup> A virus is so small that it escapes detection by microscopic methods which reveal all ordinary pyogenic bacteria. The incubation period of the rhinitis virus in the human is 12 to 24 hours. The burning sensation in the nose, the rhinorrhea and the general malaise increases for 48 hours but after that, if the infection is uncomplicated, the symptoms rapidly diminish and recovery takes place within 5 days. But the primary inflammation caused by the virus provides easy access to the pyogenic bacteria which usually cause a prolonged suppuration. Moreover, there is experimental evidence to show that the virus in itself increases the virulence and multiplying power of the bacteria already present in the respiratory tract.

This is a reasonable explanation of why common bacterial vaccines tried in many ways during the last quarter of a century have not been generally successful in preventing common colds. A virus requires living culture media (usually chick embryo is used) and it immunizes only when a live culture slightly weakened by antiseptics or heat is injected.

#### Immunity Produced by Vaccines.

It is a tragic commentary on man's sense of values that there is already available a successful virus inoculation for dog distemper while we have none as yet to prevent our common cold. Furthermore, this successful distemper virus was the result of prolonged investigation paid for by the breeders of sporting dogs in England, while the owners of silver foxes in Canada, who had lost millions of dollars through distemper epidemics, withdrew financial support from a single investigator, working in a poorly-equipped laboratory just after he proved that distemper was due to a virus. The fact that one attack of distemper confers immunity if it does not kill the animal, and human influenza does not, would suggest that there is probably more than one type of virus capable of producing the epidemic influenza in humans.

Bacterial vaccines, however, do have a place in restricting respiratory infections. They aid in preventing the complications due to pyogenic bacteria which prolong the infection and cause sinusitis, otitis and pneumonias. Some careful investigators have shown that, in some instances at least, ordinary pyogenic bacteria may cause rhinitis without a preceding virus infection.<sup>10</sup> Sinusitis is probably wholly the result of a bacterial invasion.

The greatest difficulty in immunizing is due to the fact that in successive attacks of rhinitis and sinusitis different bacteria or at least different strains of the same organism are present. Last winter I prepared films of my nasal secretion each time I had a "cold". During a brief attack



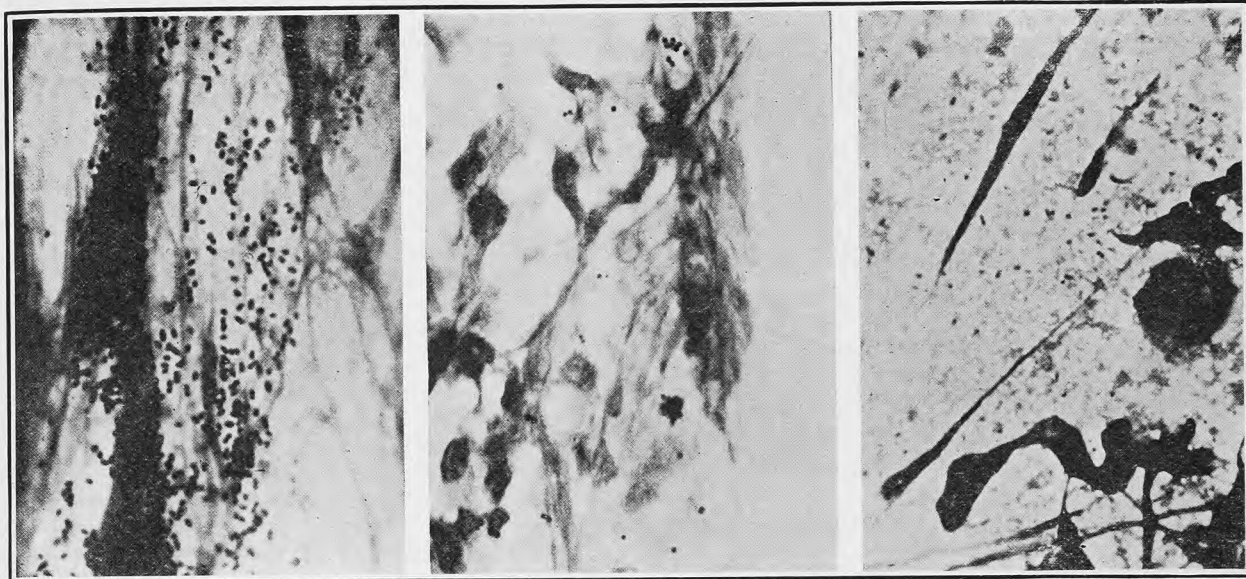


Fig. 3.—Bacteria present in attacks of purulent rhinitis during the winter 1934-1935.

All magnified 1000 diameters.

(a) Pneumococci Nov. 20, 1934.  
Group 4.

(b) Staphylococci Dec. 27, 1934. A  
clump below the centre is  
slightly out of focus.

(c) Influenza bacilli May 19, 1935.  
Small cocco-bacillary forms.

starting November 20th there was a profuse yellow purulent discharge containing myriads of pneumococci. No other organism was present. It did not show any reaction with Type 1, 2 or 3 serum and therefore would be classed as group 4.

On December 27 another attack developed. Microscopic examination of the nasal secretion showed a staphylococcus to be the predominating organism with a few diphtheroids also present. Too much Christmas feasting was likely a prominent contributing factor in this attack.

On May 19th a more severe attack developed and my nasal secretion at this time showed a pure culture of influenza bacilli. Other members of the laboratory staff had rhinitis at the same time and due to the same organism.

The pneumococcus, streptococcus and staphylococcus are the commonest invaders. The influenza bacillus, micrococcus catarrhalis, diphtheroid and Friedlander's bacillus are less common.

When stock vaccines containing several types of bacteria are administered the dose of any one is usually too small to produce an adequate amount of antitoxin or antibody. Within wide limits the amount of immunity is in direct proportion to the amount of bacterial protein, toxin or toxoid inoculated. Next in importance in accounting for failure would be the want of properly standardized products for inoculation. Bacterial vaccines are crude antigenic substances and different cultures of the same organism may vary enormously in their immunizing properties. Despite this, colds in the well-inoculated have about half the febrile period occurring in those who do not receive any injections, although the incidence as shown by statistical investigation is not appreciably decreased. But too many injections are required to commend the procedure for general use.

Recently a high degree of immunity against rhinitis has been claimed following the repeated intranasal spraying of bacterial vaccines to increase the local immunity of the nasal mucosa.<sup>11</sup> More extensive experience will be needed to prove that this procedure merits general acceptance. There is no single antigenic substance yet produced having a high immunizing power against a wide variety of bacteria. No method has been discovered as yet to reduce the toxic effect and retain the immunizing effect.

Since a staphylococcus accounts for about one-third of acute and chronic cases of sinus infection it will be interesting to observe if the staphylococcus toxoid, recently produced, will successfully prevent acute staphylococcus infections and if it will promptly cure the chronic ones.<sup>12</sup>

The pneumococcus is responsible for about one-third of the acute upper respiratory infections but there are many different strains. Vaccine inoculation, using specific strains, gives satisfactory protection against all but the type 3 organism, which is not common in upper respiratory disease. The immunity against type 1 lasts over a year but that against type 2 only lasts a few months.<sup>13</sup> Group 4 pneumococcus is a common finding in acute upper respiratory infections but it does not produce very severe disease. This group is made up of over 30 strains. The great incidence and mortality from pneumococcus pneumonia among miners in South Africa has been greatly lessened following the thorough inoculation methods carried out by Dr. Lister.<sup>14</sup> For his vaccine he collected strains of bacteria prevailing in the community at the time. He used the different system of typing to that used in America and Europe. His most frequent types are in our group 4.

The streptococcus has so many strains that preparation of an effective antigen even for all



the hemolytic type is difficult. The defense mechanism of the human body does not develop antitoxins against the streptococcus as readily as it does against other organisms. The most successful attempt so far is scarlet fever streptococcus toxin which is a potent standardized antigen made from the hemolytic streptococcus present in scarlet fever throat infection. Dr. Wadsworth, director of the New York State Laboratories, from much investigation on streptococcus immunity believes that inoculation with one hemolytic strain produces an antitoxin which gives protection against other hemolytic strains.<sup>15</sup> Other investigators disagree with him.

It is probable that by administering a series of injections each of these immunizing agents seriatim one could obtain more effective protection against the most common organisms than would result from the use of the ordinary mixed stock respiratory vaccine. Since there is no successful vaccine for the primary virus causing epidemic colds and influenza, is it worth while attempting to augment the immunity against some of the most common and serious secondary invading bacteria? Have we any alternative benefit to advise? Physicians, and the general public as well, demand a degree of perfection in prophylactic inoculation that far exceeds the standards demanded in other branches of medicine. Unless some potent antigen is developed which will in a few inoculations successfully immunize against most forms of upper respiratory sepsis, each individual's problem will be decided on its own. Immunizing injections of potent antigens like staphylococcus toxoid, scarlet fever toxin (for hemolytic streptococcus) and pneumococcal vaccines will only be advised for those who have more than two or three prolonged attacks of acute rhinitis each winter.

Although there are many accessory factors in the production of disease, we must not lose sight of the main etiological cause—namely, a virulent respiratory infection that is contagious and will make inflammatory inroads on the respiratory tracts of all, the physically perfect as well as the decrepit, except those who have a high degree of immunity. Experience in the successful control of other infection would indicate that such a high degree of immunity can be hoped for only by artificial immunization.

To sum up—

In the etiology of upper respiratory sepsis—

1. An allergic constitution should be excluded.
2. We should not lose sight of the fact that pathological changes in the nose are more the result of disease than the cause, although they may be a contributing cause by interfering with normal drainage and respiration.
3. Bad hygiene is a very important contributory cause, especially over eating of a poorly balanced diet, lack of physical exercise and lack of sleep.
4. The most direct cause of upper respiratory infection is the transmission of virulent microbes from others who harbor such infections. As it is not possible to avoid these under present con-

ditions of living we should take full advantage of every advance in immunization methods.

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### \*The Findings of Eye Examinations

#### AN ANALYSIS OF 10,000 CASES

By

N. BISHOP HARMAN, F.R.C.S.

*Chairman of the Ophthalmic Committee  
of the British Medical Association*

At the recent Annual Representative Meeting of the British Medical Association, in presenting the report of the Ophthalmic Committee, I gave some figures of the findings of the examination of the eyes of a number of patients who had obtained their ophthalmic treatment through the medium of the National Ophthalmic Treatment Board. There have been many inquiries about those figures, and, since some new facts have been gathered, a fuller record of them may be of value.

The investigation arose from a desire to get detailed information of the conditions found in a fair average sample of the patients seen through the Board's organization all over the country. At different times figures have been obtained from amongst hospital patients, and some ophthalmic surgeons gave us returns for their private patients, but it was thought by some that these returns might not give a fair indication of the conditions for which patients, many of them members of approved societies, sought eye treatment. Some averred that what these latter people needed was "just glasses"; and they said in effect, Let them choose what suited them with such assistance as a well-meaning optician might be able to afford them, and their need would be met; others asserted that the opticians were now so well trained and tested by their several trade organizations that they were quite capable of discovering and dealing with the cases that were what they termed "simple refractions," and of referring cases other than these—that is, of disease or defect—for the more expert examination of the ophthalmic surgeon.

A number of ophthalmic medical practitioners working in different parts of the country who

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were in the habit of seeing considerable numbers of patients through the Board were asked to keep records of the patients examined by them. To enable the records to be compared, cards were issued to these doctors giving a short but sufficient classification of the conditions which were likely to be found, with directions as to the manner of entering the returns. There was to be no selection of the cases; all received through the Board were to be recorded. By this date returns of 10,085 patients have been received from forty-seven doctors, who practise in such parts of the country as give a fair representation of the country generally. I wish here to express my thanks to those doctors who took so much time and trouble in making the returns; the purpose of the inquiry may not have been evident to them when the request for information was made, but they will see the results of their labours in this paper.

The returns were handled by a competent statistician, and the following tabulation was obtained:

Total No. of cases analysed .....	10,085
No. of doctors supplying records.....	47
No. of cases of error of refraction only.....	6,464 or 64.09%
No. of cases of error of refraction plus one or more "other eye conditions".....	2,940 or 29.15%
No. of cases without an error of refraction but with one or more "other eye conditions" .....	580 or 5.75%
No. of cases with no appreciable eye defect .....	101 or 1.00%

In the cases included in the above analysis the following types of error of refraction or other eye conditions were found:

#### Errors of Refraction

Hypermetropia .....	in 1,357 cases or 13.45%
Hypermetropia and/or astigmatism .....	4,481 " 44.43%
Myopia .....	387 " 3.83%
Myopia and/or astigmatism .....	1,867 " 18.51%
Odd eyes .....	351 " 3.48%
Presbyopia .....	3,743 " 37.11%
Mixed astigmatism .....	235 " 2.33%

#### Other Eye Conditions

Diseases of conjunctiva—lids and/or sac .....	704 " 6.98%
Diseases of cornea—all forms.....	237 " 2.35%
Diseases of uvea—all forms.....	544 " 5.39%
Optic neuritis or atrophy.....	105 " 1.04%
Cataract—all forms and stages.....	806 " 7.99%
Glaucoma—all forms and stages.....	72 " 0.71%
Myopia—over 5 D in both eyes.....	311 " 3.08%
Squint—latent or patent .....	632 " 6.26%
Constitutional diseases or ocular affections .....	489 " 4.84%
Bad conditions of work.....	35 " 0.34%
Injuries or effect of injuries.....	71 " 0.70%
Other material conditions .....	263 " 2.60%

#### EYE CONDITIONS OTHER THAN ERRORS OF REFRACTION

The major finding arising out of the figures is the fact that one in every three of the patients seen had some defect of their bodies or their eyes other than an error of refraction. Such a finding may seem startling to those unfamiliar with eye work, but it is within the ordinary experience of ophthalmic surgeons. Tired eyes and inability to see easily or clearly mean to most people a need for glasses; it is a natural enough idea, and the assumption may be right or it may be wrong.

Only an examination by an expert can determine the point. In effect the returns show that for most the assumption is true, but for the many it is untrue. Similarly, a patient sometimes cheerfully explains that an eye that is slightly red and sore is so because "a fly got into it two or three days ago," whereas an appropriate examination shows a deposit of fine dewdrop precipitates inside the eye on the back of the cornea, and proves that no trivial external irritant, but some serious internal sepsis, is the cause of the trouble.

The category of eye conditions other than errors of refraction is plain evidence of the seriousness for the need of expert examination. Conjunctivitis or sore eyelids are a real handicap to the worker; the discomfort caused is not conducive to good work; personal appearance is poor; whilst the risk of a septic lachrymal sac to workers exposed to flying particles, as lathe-workers, hammermen, or road menders, is common knowledge.

Diseases of the uvea, which include iritis, cyclitis, choroiditis, and retinitis, are dangerous conditions. Not only do they present, if unchecked, grave risks to the sight, but they indicate in the majority of cases some constitutional trouble needing attention. So one could comment upon the other items of the list: optic neuritis or atrophy, cataract, glaucoma, and so on. Optic nerve trouble may in its onset suggest no more than the want of glasses, and glasses may indeed help, and perhaps satisfy the patient with some improvement in his sight for a time; yet failure in diagnosis may mean irrecoverable loss of precious time in discovering and attacking the basic condition responsible for the nerve trouble. Cataract may undoubtedly be delayed in its progress by early treatment, change of work, of regime, and so forth, therefore its recognition in the earliest stages is needful.

The dread disease of glaucoma, the probable cause of Milton's blindness, is almost always associated with some change in refraction, for which new glasses are appreciated, but these may be a dangerous snare if the presence of the disease be unrecognized. Latent squint is a prolific cause of chronic eyestrain, headache, and invalidity; handled well the relief may be magical, mis-handled the aggravation may be serious.

Constitutional diseases—independent of disease setting up any of the preceding ocular conditions—are accountable for apparent asthenopia, but the tired eyes are often not at fault; it is the general laxity of tone. The dyspeptic is a common complainant of tired eyes. To order glasses and nothing else for a man suffering from a dilated stomach, with all its attendant disabilities, is to add insult to injury, or to display a naïve belief in the uplifting effect of glasses! Among the "other material conditions" are included twenty cases of tobacco amblyopia—a remarkable finding in these days of costly tobacco and spirits. The number (3,743) and the percentage (37.11) of cases of presbyopia—that is, of patients over



about 45 years of age in need of glasses for near work, only shows that the majority of the patients examined were of the young and early middle-aged workers—just those from whom we expect the best work, for whom good eyesight is most important, and for whom we ought to provide the best eye treatment.

#### A CONTROL

Is it possible to check these figures in any way? Can we find some sort of yardstick which will act as a control? There is happily one finding by which we are able to secure an effective control. Certain factors of the cases seen through the N.O.T.B. scheme are recorded and filed at the office of the Board. One of these shows how many patients are reported by the ophthalmic medical practitioners as not requiring glasses. The matter is naturally of importance from the dispensing optician's point of view. Hence the keeping of the record. Mr. Harwood, the secretary of the Board, has had these figures analysed for the twelve months from September 1st, 1933, to August 31st, 1934. There were brought into account 68,047 cases, of which 4,115 were found not to require glasses, or a percentage of 6.05. Among the cases brought into this particular statistical inquiry the number of cases for whom no glasses were ordered were those marked as "other eye conditions" (580, or 5.75 per cent.), and those in whom no appreciable eye defect was found (101, or 1 per cent.)—a total of 681 cases, or 6.75 per cent. There are, then, these two returns:

Of 68,047 cases seen by 821 doctors 4,115 did not require glasses, or 6.05 per cent.

Of 10,085 cases seen by forty-seven doctors 681 did not need glasses, or 6.75 per cent.

One could not expect a closer approximation in two such returns. The control thus afforded is strong evidence for the trustworthiness of the reports of the medical conditions found among the cases which have been brought into this analysis—if, indeed, such confirmation of its trustworthiness be needed.

#### THE LESSONS

So far the lesson of the returns is the need for expert examination of the eye. But there is another lesson to be learned. There are those who believe that the examination of patients' eyes by sight-testing opticians is both a satisfactory and an economical proposition. The comparison of these medical returns with certain other returns shows that neither of these beliefs is borne out by the facts known.

When I received the first figures of this analysis, which were presented to the Representative Meeting in July, and learned that no less than 36 per cent. of the cases seen needed attention other than the provision of glasses, I sought to find out what proportion of cases seen by sight-testing opticians were similarly reported, and referred by them to ophthalmic surgeons for further examination. At first there was a remarkable difficulty in getting any answer to this simple question. No one knew, or, knowing, would tell. The most that could be got by way of answer was

an expression of opinion that on the average not more than 10 per cent. were so referred for further examination. That figure I quoted in July since then some definite information has been obtained. Certain approved societies have been good enough to supply actual figures of referred cases during 1933 or 1933-4. I may not give the names of the societies, but they are weighty. They represent several millions of insured persons, and they provided ophthalmic benefit to several thousands of their members. In these returns the percentage of cases referred by the sight-testing opticians to ophthalmic surgeons ranges from 1 to 4.6; the average is 3 per cent.

There is, then, this astonishing comparison: in a series of patients examined by ophthalmic surgeons 2,940 cases, or 29 per cent., proved to be cases other than errors of refraction alone, and no fewer than 580 or 5.75 per cent. cases of other conditions without any error of refraction; yet the percentage of cases referred "for further examination" by the opticians, who profess only to be able to deal with errors of refraction, was only 3.

#### CONCLUSION

The conclusion is irresistible. The opticians did not recognize the defects present in the eyes of the patients seen by them, or if they did recognize them they did not report them for medical examination.

The corollary is this. Patients who go to opticians to have their sight tested do not get what they want, or they do not get what they ought to get. Such a finding is conclusive of the proposition that an examination by an optician is uneconomical, and conversely that approved societies or others who are responsible for advising patients to seek eye examination cannot in the interests of these persons do other than adopt the only economical method—that is, by securing examination by competent ophthalmic medical practitioners.

There is nothing new in this conclusion. It has been the finding of three separate Government inquiries:

"We are of the opinion that it would be undesirable and a positive danger to the public for Parliament to pass any measure which might convey the idea that an optician, who is a person qualified to provide glasses prescribed by medical men, is further himself competent to examine the eyes of patients and to prescribe glasses for the correction of errors of refraction." (Departmental Committee on the Causes and Prevention of Blindness, 1922.)

"It was admitted even by medical witnesses who appeared before us to support the case of the opticians that other things being equal it would be preferable for the purpose of testing eyesight to have recourse to a properly qualified eye specialist rather than to the most highly qualified optician." (Royal Commission on National Health Insurance, 1925.)

"... we are satisfied that the number of cases in which the patient may miss the opportunity of remedial treatment if the case is not handled by an oculist is by no means negligible." (Departmental Committee on the Optical Practitioners Bill, 1927.)

But this is the first time that the conclusion of the true economy of a medical examination of the eyes has been based upon figures of such volume as to compel attention.



## Editorial and Special Articles

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*Editor*

C. W. MACCHARLES, M.D. (MAN.)

*Advisory Editor*

ROSS B. MITCHELL, B.A., M.D., C.M. (MAN.),  
F.R.C.P. (C.)

*Business Manager*

J. GORDON WHITLEY

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#### MINUTES OF EXECUTIVE MEETING

Minutes of a meeting of the Winnipeg members of the Executive of the Manitoba Medical Association, held in the Medical Arts Club Rooms on Wednesday, February 12th, 1936, at 12.30 noon.

##### Present.

Dr. F. G. McGuinness	Dr. W. E. R. Coad
Dr. D. C. Aikenhead	Dr. W. G. Campbell
Dr. F. W. Jackson	Dr. E. S. Moorhead
Dr. C. W. Burns	Dr. C. W. MacCharles
Dr. W. E. Campbell	Dr. G. S. Fahrni
Dr. A. S. Kobrinsky	Dr. W. W. Musgrove
Dr. F. A. Benner	Dr. C. R. Rice.

(Drs. Fahrni, Musgrove and Rice are representing the M.M.A. on the Committee of Twelve).

##### Re. Annual Meeting.

Dr. C. W. Burns, convener of the Programme Committee, was asked for a report. Dr. Burns advised as yet he had nothing to report, although he had been in communication with the Dean and Professor of Medicine and Surgery, and would like to know definitely the date of the meeting. As the date of convocation is May 13th, it was moved by Dr. F. A. Benner, seconded by Dr. W. E. R. Coad: That the Annual Meeting be held on the 14th, 15th and 16th of May. —Carried.

Discussion took place as to whether or not any oral examinations in the third and fourth year of medicine might not take place on those dates.

It was moved by Dr. A. S. Kobrinsky, seconded by Dr. C. W. Burns: That the Dean be approached to see if it could not be arranged to have these dates left free. —Carried.

##### Re. Exhibits at Annual Meeting.

The question of exhibits at the Annual Meeting came up for discussion.

It was moved by Dr. E. S. Moorhead, seconded by Dr. A. S. Kobrinsky: That the President and Secretary be a Committee to make arrangements with Mr. J. G. Whitley in reference to arranging for exhibits.

It was moved by Dr. F. A. Benner, seconded by Dr. W. E. R. Coad: That the President be authorised to appoint a Committee in charge of social functions. —Carried.

##### Report of Committee on Twelve Re. Chiropractors' Bill.

Dr. G. S. Fahrni, as a member of the Association on the Committee of Twelve, made a report in reference to the work of the Committee of Twelve. This had to do, of course, with the decision of the Committee to actively oppose an endorsement of the chiropractors' bill at the coming session of legislation. Dr. Fahrni pointed out that two pamphlets had been issued and that all medical men in the Province had been circularized, and asked for support in interviewing members of the legislation. He also reported that a delegation had waited on the Premier, Minister of Health and Public Welfare and Minister of Education, and had been very favorably received. Dr. Fahrni reported that medical students had been interviewed and they had decided to present a petition to the Governments protesting against the passing of the bill.

General discussion followed, and it was moved by Dr. F. A. Benner, seconded by Dr. W. E. R. Coad: That a resolution be sent by the Manitoba Medical Association to the Minister of Health, asking that he actively oppose the passage of this bill, pointing out that the medical profession had co-operated with the Department of Health at all times, and wished to go on record that the Minister should definitely oppose any legislation granting chiropractors a license to take care of the sick, unless they were prepared to come up to the same standards as prescribed by the University in the medical course.

It was moved by Dr. D. C. Aikenhead, seconded by Dr. W. G. Campbell: That this Executive approve and endorse all work already carried out by the Committee, and wished to especially thank Dr. Fahrni for his untiring efforts on behalf of the profession of Manitoba. —Carried.

The meeting then adjourned.

#### VICTORIAN ORDER OF NURSES

The Annual Meeting of the Victorian Order of Nurses was held in the Medical Arts Club Rooms on February 4th, 1936. This was the 34th annual meeting of the Winnipeg Branch of the Order. It was reported that the nurses had made during the year 12,755 visits and nursed 1,284 cases. The total number of obstetrical cases was 83 and the confinements attended 67. The decrease in the number of confinements attended is apparently due to the increasing proportion of maternity cases which go to hospital. The service of the Victorian Order of Nurses was made use of by 213 physicians in Winnipeg. Demonstrations were given to the graduating classes of the Winnipeg General, Misericordia, St. Boniface and Grace Hospitals.

# 5 TYPES

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## FOR CONSTIPATION

## UNEMPLOYMENT RELIEF REPORTS

The attention of practitioners on the panel in Winnipeg is drawn to the following letter:

February 10th, 1936

Dr. E. S. Moorhead,  
Chairman, Committee on Sociology,  
Manitoba Medical Association,  
Winnipeg.

Dear Sir:

Might I draw your attention to the fact that some doctors still continue to send reports to this office having insufficient postage.

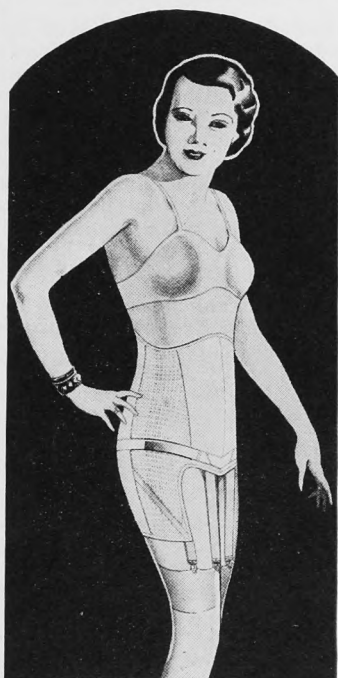
This has become so serious that the Postal Department has informed the Relief Department that the Relief Department will be held responsible for all postage due on letters or reports which they accept. The only recourse this department has in that case would be to return letters lacking sufficient postage. This the Relief Department does not wish to do as it would cause delay and trouble to doctors.

The Superintendent asked me to take this matter up with you and ask that the doctors be notified that the Relief Department will be forced to return mail with insufficient postage, if this practice is not stopped.

Yours very truly,

UNEMPLOYMENT RELIEF DEPARTMENT

(Signed) H. HARVEY,  
Medical Officer.



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## NEWS ITEMS

### NOTICE

#### Scarlet Fever Antitoxin.

Connaught Laboratories are now supplying scarlet fever antitoxin standardized in terms of the unit which was adopted by the United States Public Health Service. This unit is equivalent to fifty original neutralizing units as established by the Scarlet Fever Committee, Incorporated. In other words, each U.S.P.H.S. unit of scarlet fever antitoxin neutralizes fifty standard skin-test doses of scarlet fever toxin. The prophylactic dose of this product now stands increased to contain one-third as much antitoxin as is contained in a treatment-dose package, this ratio having been originally two-fifteenths.

Treatment dose .....	6000 units
Prophylactic dose .....	2000 units

### EAR CONDITIONS FROM THE PREVENTIVE STANDPOINT

(Edmund Price Fowler, M.D., New York City)

The following is the first portion of a report by Dr. Edmund Price Fowler on "Ear Conditions from the Preventive Standpoint." Dr. Fowler's report will be completed in the next issue of "The Review."

Prevention in the medical sense means "to take precautionary measures against," "to forestall or anticipate" injury, deformity, or disease; also, "to stop, ward off, or thwart" injury, deformity, or disease and the anatomical and functional defects following such. All medical and surgical measures are in their essence preventive, whether they be applied before, during, or after the threat or the appearance of the conditions against which they are directed.

Man differs markedly from other animals in his ability to anticipate attack, whether it be from disease or from his fellow man or from his animal, vegetable, or mineral surroundings. He seldom does this on a large scale because there are too many other things to be done to be constantly anticipating some affliction which, after all, may cause but a small percentage of deaths, although considerable individual crippling of function. And so, except in rare instances, nothing will be done in the line of prevention until there are some signs (usually marked signs) of impending or actual disease.

It is well, generally speaking, that man is not constantly anticipating trouble. Over-precaution engenders psychological and even bodily reactions often more undesirable than the trouble itself, and may in fact degenerate into a neurotic fad. The best justification for preventive treatment as applied to ear conditions is exposure to infection or some sign or history of ear abnormality in self or family.

Prevention may be discussed from many angles: i.e., heredity, sex, age, environment, climate, social conditions, health, habits, idiosyncrasy for or against poisons, irritations, and infections, and immunity and reaction thereto. The digestive tract, blood, bones, glands, endocrines, vasomotor mechanisms, and nervous systems all give problems in reference to prevention. The whole subject will be treated under three main headings, detection, diagnosis and treatment.

### DETECTION

The most important preventive measure is early detection in infancy, youth, adolescence, middle and even in old age. Early detection must be concerned not only with the patient, but with the relatives, ancestors, and all offspring because, generally speak-

ing, ear disease, like many other diseases, tends to run in families. This does not mean that it is necessarily inherited as such. It does mean that externally and internally children resemble their parents and, as did their forebears, inherit through anatomical and physiological similarities, similar reaction to, acquisition of, and resistance to disease in similar environments. The inheritance factor is a matter of dominant genes; it is a matter of similar anatomical and physiological set-ups, plus contacts with similar infections, poisons, or traumas, in children and parents. Family histories indicate in general the direction, force, and duration of the hereditary winds, and what they are likely to pick up on their way. I have unearthed as many as nine in one family (seven children and two parents), all of whom showed tendencies to similar ear disease and deafness. It is my personal opinion that deafness in any member of a family should lead us to examine every member of that family, so that in case of positive findings preventive measures may be instituted.

The only advocated preventive measure for inherited tendencies has been the abolition of offspring. A tendency to cataract, tuberculosis, otosclerosis, bad teeth and even flat feet may be inherited. Should we condemn parents with any of these conditions to a childless marriage? After middle life the hearing of a majority of human beings begins to decrease and at an increasing rate with advancing age. Should we therefore advise this majority (or their children) to refrain from bearing offspring? If not, at what age is deafness to be considered a reason for eugenic control? And why?

I believe it is far better to strive for early detection in parent and child and for an early arrest or cure of the condition with proper preventive follow-up, than to expend energy upon unobtainable and questionable eugenic control. Remember that the struggle for existence is the greatest factor in developing the greatest human (or animal) qualities and that overcoming a defect develops a power to succeed to an extreme degree. A defect in the father may therefore bring about an urge to succeed which may be passed on to the son, not necessarily by inheritance, but surely by example. Like father, like son. No people have contributed so much to the cause of the deafened as the deafened themselves. Does this hold true in any other type of lowered function?

### DETECTION OF SYMPTOMS

The usual means for detecting ear trouble is the recognition of abnormal signs or symptoms referable to the ear. If such symptoms are acknowledged upon their first appearance and are acted upon intelligently, early preventive measures may obtain. Such symptoms are:

1. Deafness, dullness, heaviness or blockage sensations persisting for more than a few minutes, especially after exposure to cold, swimming, head colds, fatigue, constipation, shock, or other causes of lowered resistance.
2. Asking for the repetition of words or phrases; hearing better in a noisy place (paracusis); hearing two sounds where only one is sounded (diplacusis); inability to locate the direction from which sounds emanate.
3. Tenderness, itching, heat or pain in and about the ear.
4. Tinnitus (autogenous noises in the ear).
5. Vertigo, a sense of unsteadiness or faulty equilibration, nausea, vomiting, jumping of the eyes (nystagmus).
6. Moisture, running or discharge in the external ear canal.
7. Deformity or swelling in or about the ear (red and painful or otherwise).



8. Headache, fever, sweats, chills, facial paralysis, and many allergic or neurological symptoms correlated to any of the above.

Of course any of these symptoms may be due to other than ear disease and many of them not to any disease. As their detection comes later and later, it is less and less useful from the preventive standpoint.

### HEARING TESTS

Early detection is dependent upon early elicitation and recognition of abnormal signs and symptoms. School examinations are now far ahead of anything in the past due to the audiometric tests instituted and largely carried out in New York under the supervision of the New York League for the Hard of Hearing, and recently also under the auspices of the Board of Education. Over 600,000 children have been examined from March, 1934 to April, 1935. Each class, up to 40 pupils, is first tested by the 4A phonograph audiometer. Those showing a loss of 9 db\* or more are considered subnormal and after a retest of the borderline cases are tested by the 2A audiometer, by air conduction and by bone conduction. This is the first time that such a complete examination has been accomplished on a large scale.

Preliminary to the hearing test a careful history is obtained, and after the test a comprehensive otological examination. A follow-up system is put into operation which endeavors to continue observation or treatment. A great defect is the inability to obtain the continued co-operation of parents, physicians and clinics, even under repeated provocation and with a definite history of family ear disease or deafness. Another defect is that children with low normal hearing are not given an otological examination. Many such have ear disease and go on to severe deafness. The only way to obviate the poor results now obtained is to test children when they first enter nursery and elementary schools and to examine otologically all with a positive personal or family history, whether they show deafness or not. The number of subnormal ears one will find if one looks for them is surprising.

The standards used for adults must be elevated when testing children. Normal children on the average test 10 db better than average normal adults. Our standard of 9 db loss is therefore too low and is defeating in large measure the early prevention of ear conditions. It would be far better to use 6 db, even though this triple the load for the examiner. For practical purposes there may be a 15 db loss at certain frequencies without important implications of trouble. But even in such instances a careful search should be made to account for the variation. A second test should always be made. It will often reveal a slightly better hearing level because of the practice factor.

Up to and even above the age of 6 in many instances, only individual tests are feasible. The residual whispered voice should be heard and words understood by the attentive normal hearing child at a distance of 20 feet in a large quiet room, and at 40 feet in absolute quiet. Have the child repeat simple words it knows; make it a game, and do not prolong the test over a few minutes at a time for fear of tiring the little one. There is a safe margin in favor of this test qualitatively, because if the voice is heard no less than one-third of the average normal distance, it means that the loss of hearing is not over 10 db. This is approximately the standard (9 db) set up for screening the hard of hearing from the normal hearing school children.

What are judged to be the first signs of ear trouble often prove after careful examination to be caused by lesions of long standing. Such evidence makes it imperative to examine every child if we aim to detect

early evidences of deafness and to determine a basis for future reference. In little babies it is possible to detect deafness by conditioning methods, unintentional or by design. Most babies are automatically conditioned to many sounds and respond by cry, laugh or smile or certain movements on slight sound provocation; that is, if they have no hearing defect. Here accurate audiometric measurements are not necessary. What we desire first, is to know whether or not the baby's hearing is near normal. The greatest obstacle to early detection is a parent's aversion to admitting defect in his or her offspring. A mother nearly always early suspects a real defect, but often delays in acknowledging it. I am dwelling somewhat at length upon this phase of the subject because I am certain it is of great importance from the preventive standpoint.

The standard measure for hearing acuity is minimum audibility. I wish to point out that this is but one criterion, because minimum audibility is not the level at which the human ear habitually senses the ordinary intensities of speech, music, street and other noises. The ear usually ignores faintly audible sounds. A person may hear sounds as well as another at a minimum audible intensity, and yet not as well at louder intensities. This symptom may be the earliest sign of certain types of obstructive deafness.

### DIAGNOSIS

Detection is of little or no use as a preventive measure without a differential diagnosis and a differential treatment. Differential diagnosis should, of course, play a part in every diagnosis, even if the examiner does not consciously sense the fact that he is making one. There is often an inexcusable laxity in otologic diagnosis. Note the following commonly used expressions: "progressive deafness," "inherited deafness," "tubal catarrh," "chronic catarrhal otitis media" (OMCC)—whatever that is, "nerve deafness," etc. All of these are indefinite or incomplete diagnostic terms.

It is quite a common practice to make a diagnosis of "otosclerosis" simply because with deafness there is obtained no history or sign of ear inflammation. In my opinion a large proportion of the diagnoses of otosclerosis are false, although the personal and family history, hearing tests, and the deafness, fit into the textbook descriptions of this condition. We obtain in almost one-third of the otosclerosis found at autopsy, no evidence of ankylosis of the stapes although ankylosis of the stapes is the lesion which causes the typical obstructive and progressive deafness of this baffling entity.

Many otologists lose interest immediately after making a diagnosis of otosclerosis. With few exceptions much can be done, particularly in the young, not for cure of the otosclerosis, but for the prevention of the deafness caused by the coincidental lesion which may always precede or accompany it and which, I believe, at least one factor in the etiology of the condition. The examiner has not finished when he has made a diagnosis of otosclerosis until he has otoscopically, with the unaided eye and with the aid of the magnifying pneumatic speculum, recorded the luster, transparency, congestions, edemas, bulgings, retractions, increased or diminished tensions, increased or diminished movements, scarrings, perforations, adhesions, and calcium deposits, in both the membrana tensa and flaccida, and the movability of drum and umbo, and also abnormal vasomotor phenomena on the drum and promontory. He should make this a routine in every otoscopic examination.

It is generally believed that otosclerosis has no relation to any other disease of the ear. I do not believe this because I find few cases without clinical indications of present or past inflammation in the middle ear. In over fifty cases examined by microscopic serial sections, including slides both of our own and others, positive signs of past inflammatory episode were found. In no instance were such signs absent.

\* "db" is an abbreviation of the word "decibel." A decibel is the standard unit of measure for sound intensity. One decibel is the minimum amount of loudness change that can be detected as such. A decibel is the sensation unit (S.U.) used in measuring hearing capacity.

It has never been proved that consanguinity, which is in all recessive disease an important factor in the increment of familial defects, induces an increase in the family incidence of otosclerosis. The contrary appears to hold in many families. Moreover, although much effort has been expended to prove that otosclerosis is wholly a familial disease and transmitted as such to future generations, as in Mendelian types, there are so many exceptions as to similarity and exact seat of lesion, number in family attacked, number perpetuated, identical age of onset, course, arrest, symptomatology, etc., that it is clear to me that otosclerosis, like some other types of obstructive deafness, is not dependent wholly upon inheritance and that local factors are involved in its etiology and progress.

It is worth noting that routine adult autopsy findings show one in twenty with otosclerotic lesions, not over one-half of whom really suffered from deafness. In children otosclerosis is rare and in early childhood very rare. In the fetus it is still a question if it has ever been identified. Surely a disease wholly dependent upon hereditary influences should show some premonitory sign at an early age. None has been discovered.

Audiometric measurements are of inestimable value in early differential diagnosis if both air conduction and bone conduction are measured. Air conduction and bone conduction may be within normal limits for the frequencies most used for speech (256 to 3000 inclusive), although one or both are far from normal for some of the lower tones or the higher tones. If this obtains the hearing is not normal, and if only from a preventive standpoint, a differential diagnosis is called for. Audiometric examinations are of value not only as aids to diagnosis but for measuring the time variations in hearing. They are far more accurate for this purpose than tuning forks.

As aids to diagnosis one should always examine the nose, throat and teeth, and often stereoscopic x-rays of these structures, blood counts, blood chemistry, tuberculin and Wassermann reactions, and for focal infections.

## COMMUNICABLE DISEASES REPORTED

### Urban and Rural - January, 1936.

**Measles:** Total 1029—Winnipeg 638, St. James 60, Flin Flon 45, St. Boniface 36, Garson Village 28, Kildonan East 28, Macdonald 25, St. Vital 25, Archie 16, Transcona 14, Kildonan West 12, Springfield 10, St. Andrews 8, St. Laurent 7, Thompson 7, Kildonan North 6, St. Clements 6, Grey 5, Whitewater 5, Fort Garry 4, Morris Rural 4, Unorganized 4, Wallace 4, De Salaberry 2, Franklin 2, Glenwood 2, Hanover 2, Miniota 2, Montcalm 2, Norfolk North 2, Riverside 2, The Pas 2, Argyle 1, Armstrong 1, Assiniboia 1, Cameron 1, Coldwell 1, Killarney Town 1, Minitonas 1, Portage Rural 1, Rockwood 1, Selkirk 1, Stonewall 1, Strathclair 1, Tuxedo 1, Virden 1.

**Mumps:** Total 255—Winnipeg 140, St. Boniface 27, Kildonan West 18, Kildonan East 16, Dauphin Town 15, St. James 13, Unorganized 8, St. Vital 3, Carman 2, Harrison 2, Springfield 2, Strathclair 2, Argyle 1, Emerson 1, Fort Garry 1, Killarney Town 1, Ste. Anne 1, St. Clements 1, Tuxedo 1.

**Chickenpox:** Total 196—Winnipeg 119, Flin Flon 36, Unorganized 12, St. Boniface 5, St. James 4, Brandon 4, Tuxedo 3, Daly 2, Dauphin Town 2, Selkirk 2, Dauphin Rural 1, Elton 1, Kildonan East 1, Neepawa 1, St. Clements 1, Whitemouth 1, Whitewater 1.

**Scarlet Fever:** Total 169—Winnipeg 85, Flin Flon 9, St. Boniface 7, Louise 6, Argyle 6, Brandon 6, Kildonan West 5, Clanwilliam 4, Manitou 4, Norfolk North 4, Elton 3, Shoal Lake Rural 3, Neepawa 2, Pembina 2, Rosedale 2, St. Clements 2, St. James 2, Thompson 2, Birtle Rural 1, Eriksdale 1, Glenella 1, Kildonan East 1, Lac du Bonnet 1, Pilot Mound

Village 1, Roblin Rural 1, Rockwood 1, Saskatchewan 1, Swan River Town 1, St. Andrews 1, Transcona 1, St. Paul W. 1, Unorganized 1, Woodlands 1.

**Influenza:** Total 82—Whitehead 50, Winnipeg 14, Whitewater 5, Brandon 3, Sifton 3, De Salaberry 3, Louise 2, Shellmouth 1, Carberry 1.

**Tuberculosis:** Total 58—Winnipeg 6, Unorganized 6, Portage City 4, De Salaberry 2, Fort Garry 2, Norfolk South 2, St. Boniface 2, Albert 1, Bifrost 1, Brandon 1, Charleswood 1, Clanwilliam 1, Cypress South 1, Dauphin Rural 1, Dufferin 1, Grey 1, Harrison 1, Lac du Bonnet 1, Langford 1, Lawrence 1, Lorne 1, McCreary 1, Macdonald 1, Mossey River 1, Pilot Mound Village 1, Pipestone 1, Portage Rural 1, Rhineland 1, Rossburn Rural 1, Selkirk 1, Shellmouth 1, Shell River 1, Siglunes 1, Stonewall 1, Ste. Anne 1, St. Clements 1, St. Laurent 1, St. Paul West 1, St. Vital 1, Transcona 1, Westbourne 1.

**Whooping Cough:** Total 56—Winnipeg 22, Unorganized 10, Whitewater 8, Morris Rural 6, Louise 2, Springfield 2, St. James 2, Brooklands 1, Transcona 1, Whitehead 1, Roblin Village 1.

**German Measles:** Total 50—Whitewater 26, Rosser 6, Brandon 5, Cypress South 2, Kildonan West 2, Sifton 2, Whitehead 2, Dauphin Town 1, Kildonan East 1, Kildonan Old 1, St. Boniface 1, Tuxedo 1.

**Diphtheria:** Total 26—Winnipeg 12, Tuxedo 3, La Broquerie 2, Stanley 2, Unorganized 2, Bifrost 1, Cartier 1, Charleswood 1, Fort Garry 1, St. James 1.

**Erysipelas:** Total 11—Winnipeg 4, St. Boniface 2, De Salaberry 1, Portage City 1, Rhineland 1, St. Vital 1, Whitemouth 1.

**Diphtheria Carriers:** Total 6—Winnipeg 6.

**Typhoid Fever:** Total 2—St. Vital 1, Lac du Bonnet 1.

**Amoebic Dysentery:** Total 1—St. Vital 1.

**Cerebrospinal Meningitis:** Total 1—St. Andrews 1.

**Lethargic Encephalitis:** Total 1—Winnipeg 1.

**Trachoma:** Total 1—Unorganized 1.

**Septic Soar Throat:** Total 1—Eriksdale 1.

**Venereal Disease:** Total 106—Gonorrhea 83, Syphilis 23.

## DEATHS FROM ALL CAUSES IN MANITOBA

### For the Month of December, 1935.

**URBAN**—Cancer 36, Tuberculosis 8, Pneumonia 8, Influenza 5, Syphilis 3, Lethargic Encephalitis 2, Chickenpox 1, Erysipelas 1, Typhoid Fever 1, all other causes 170, all others under 1 year 4, Stillbirths 12. Total 251.

**RURAL**—Cancer 38, Pneumonia 26, Tuberculosis 16, Influenza 7, Diphtheria 3, Scarlet Fever 2, Whooping Cough 2, Lethargic Encephalitis 1, Puerperal Septicaemia 1, Syphilis 1, all others under 1 year 6, all other causes 189, Stillbirths 17. Total 309.

**INDIAN**—Tuberculosis 8, Measles 3, Pneumonia 2, all other causes 9, all others under 1 year 2, Stillbirths 1. Total 25.

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Syr. Scillae	90 minims
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## Medical Library University of Manitoba

A summary of the contents of some of journals available for practitioners, submitted to the Faculty of Medicine of the University of Manitoba. Compiled by T. E. HOLLAND, B.M.D. (Man.), F.R.C.S. (Edin.).

### "The Practitioner"—January, 1936.

This number contains a symposium on "Wounds and Ailments" composed of the following articles:

"On the Treatment of Lobar Pneumonia"—Sir Arthur J. Hall, M.A., M.D., F.R.C.S. Emeritus Professor of Medicine, University of Sheffield.

"Influenza"—by A. J. Scott Pinchin, M.D., F.R.C.P., and H. V. Morlock, M.C., M.D., M.R.C.P.

"The Common Cold; Its Prevention and Cure"—by E. P. Poulton, M.A., M.D., F.R.C.P.; F. A. Knott, M.D., M.R.C.P., Guy's Hospital.

"The Management of Otitis Media and Sinus Complicating the Common Cold"—by L. Colledge, M.B., F.R.C.S.

"Acute Sore Throat"—by E. Watson-Williams, M.C., Ch.M., F.R.C.S.E., Bristol.

"Chronic Cough in Children"—by W. G. Wyse, M.D., F.R.C.P., Hospital for Sick Children, Great Ormond Street.

"The Effects of Winter on Chronic Rheumatoid Conditions"—by J. Barnes Burt, M.D.

"Winter Dermatoses"—by H. Haldin-Davis, M.D., F.R.C.P., F.R.C.S.

Further articles in this issue are:

"The Treatment of Stammering"—by Cortlandt Mac Mahon, M.A., Instructor for Speech Defects and Breathing Exercises, St. Bartholomew's Hospital.

"Haemolytic Streptococcal Fever"—by Frank A. Ind., M.D.

♦ ♦ ♦

### "The Clinical Journal"—January, 1936.

"Local Anaesthesia in General Practice"—Norman C. Lake, M.D., M.S., D.Sc., F.R.C.S. Senior Surgeon, Charing Cross Hospital.

"The Treatment of Toxic Goitre"—by J. Linnell, M.C., M.D., M.R.C.P.; and R. J. Neill Love, M.S., F.R.C.S. (Eng.).

"Simple Gastric Disorders and their Treatment"—by Douglas Firth, M.A., M.D., F.R.C.P.

"Aids to Hearing: Investigation of the Deaf"—by F. Holt Diggle, F.R.C.S. (Eng.).

"Fractures of the Tibia involving the Knee Joint"—by A. T. Fripp, F.R.C.S.

"Minor Surgery in the Anal Region"—by H. Simmons, Ch.M., F.R.C.S.



**"The Canadian Medical Association Journal"**

—January, 1936.

Avertin"—An Analysis of 1600 Administrations  
—by Sir Francis E. Shipway, K.C.V.O., M.D.,  
Ch.B., London, England.

Subtemporal and Suboccipital Myoplastic Cran-  
iotomy"—by William Cone, M.D., and Wilder  
Penfield, M.D., Montreal.

—The operative technique used by the authors is de-  
scribed and well illustrated by drawings.

Further History of the Care and Feeding of  
the Dionne Quintuplets"—by Allan Roy  
Dafoe, O.B.E., M.D., Callander, Ont.

—This interesting article describes the care of the  
Dionne Quintuplets during their first year of life.  
Letters of advice and offers of help were received  
from many countries of Europe and Asia, from Aus-  
tralia and from all over North America. The list of  
therapeutic measures offered is very amusing.

The report of the birth and immediate care of the in-  
fants was published in the "Journal of the American  
Medical Association" 1934. 103, 673.

The Treatment of Congenital Syphilis with  
Stovarsol"—by A. M. Davidson, M.B., Ch.B.  
(Edin.), M.D. (Man.), M.R.C.P. (Edin.),  
F.R.C.P. (C), Lecturer in Dermatology, Uni-  
versity of Manitoba; and A. R. Birt, M.D.,  
Clinical Assistant in Dermatology, Children's  
Hospital of Winnipeg.

—Fifty-one cases of Congenital Syphilis treated in the  
Out-Patient Department of the Winnipeg Children's  
Hospital are discussed and the advantages of Stovar-  
sol given by mouth are shown.

Surgical Emergencies in General Practice Ex-  
clusive of Trauma"—by Roscoe R. Graham,  
M.B., Toronto.

Obesity and its Treatment"—by Walter R.  
Campbell, M.D., F.R.C.P. (C), F.R.S.C.,  
Toronto.

Induction of Labour by Rupture of the Mem-  
branes"—by E. Murray Blair, Vancouver.

Is Cardiovascular-Renal Disease Increasing as a  
Cause of Death in Canada?"—by Madge  
Thurlow Macklin, A.B., M.D., Medical School,  
University of Western Ontario, London, Ont.

An Experimental Production of Coronary  
Thrombosis and Myocardial Failure"—by  
G. E. Hall, G. H. Ettinger and F. G. Banting,  
University of Toronto, Banting Institute.

—This investigation produced coronary thrombosis and  
myocardial failure in dogs by intravenous injection  
of acetyl-choline the lesion being comparable to those  
found in man when coronary circulation has been  
deficient.

◆ ◆ ◆

**"The Journal of the American Medical  
Association"—November 16th, 1935.**

Hysterical Paralysis and its Treatment"—by  
Abraham Myerson, M.D., Boston.

—A number of case histories is included and treatment  
described.

The Choice and Interpretation of Tests of Renal  
Efficiency"—by R. H. Freyberg, M.D., Ann  
Arbor, Mich.

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"The Journal of the American Medical Association"  
—January 18th, 1936.

"Bacterial Meningitis" — A Comparative Study  
of Various Therapeutic Measures—by Carl  
J. Tripoli, M.D., New Orleans.

—A study is made of 468 cases and the various therapeutic measures used are discussed.

"Protamine Insulinate" — by H. C. Hagedorn  
M.D.; B. Norman Jensen, M.D.; N. B. Krarup  
M.D., and I. Worstrup, Copenhagen, Denmark.

—In an attempt to effect absorption of insulin more slowly and over longer periods of time thus emulating the normal secretion of the pancreas, these workers have combined insulin with a protamine, resulting in a levelling of the blood sugar curve and almost complete disappearance of symptoms of insulin reaction, and hyperglycaemia so common with administration of ordinary insulin due to its rapid absorption and quick action.

"Clinical Experience with Protamine Insulinate"—by Howard F. Root, M.D.; Priscilla White, M.D.; Alexander Marble, M.D., and Elinor H. Stotz, B.S., Boston.

—Fifteen patients were treated in Boston, the results of which are given in this paper. The observations of the Danish workers were largely confirmed. Blood sugar levels were found to be even and more prolonged and hyperglycaemic reactions almost entirely avoided.

The following papers were read before the Section on Urology at the Annual Meeting of the American Medical Association, Atlantic City, June, 1935. An abstract of the discussion which followed is included.

"Role of Anomalies of Kidney and Ureter in the Causation of Surgical Conditions"—by Robert Gutierrez, M.D., New York.

"The Embryologic and Clinical Aspect of Double Ureter"—by Allan B. Hawthorne, M.D., Montreal.

### "STONE WALLS DO NOT A PRISON MAKE NOR IRON BARS A CAGE."

Winter is a jailer who shuts us all in from the fullest vitamin D value of sunlight. The baby becomes virtually a prisoner, in several senses: First of all, meteorologic observations prove that winter sunshine in most sections of the country averages 10 to 50 per cent less than summer sunshine. Secondly, the quality of the available sunshine is inferior, due to the shorter distance of the sun from the earth, altering the angle of the sun's rays. Again the hour of the day has an important bearing: At 8.30 a.m. there is an average loss of over 31%, and at 3 p.m. over 21%.

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Moreover, as Dr. Alfred F. Hess has pointed out "it has never been determined whether the skin of individuals varies in its content of ergosterol" (synthesized by the sun's rays into vitamin D) "or, again, whether this factor is equally distributed throughout the surface of the body."

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